If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match. The on-screen version of the Collider-Accelerator Department Procedure is the Official Version. Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A

C-A OPERATIONS PROCEDURES MANUAL

7.1.71 Removal and Replacement of RHIC Second Stage Helium Compressors

Text Pages 2 through 4

Hand Processed Changes

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Approved: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

F. Cullen

7.1.71 Removal and Replacement of RHIC Second Stage Helium Compressors

1. Purpose

The purpose of this procedure is to provide guidelines for the preparation for, and the removal and replacement of a second stage helium compressor.

2. Responsibilities

2.1 CAD Cryo Mechanical techs are responsible for LOTO, removal and installation of compressor and interconnecting piping, pump& purge, leak check, alignment, testing, and coordination of outside group efforts.

2.2 CAD Cryo Electrical techs are responsible for shut off of 480V oil pump breaker, and 110V local breaker at skid.

2.3 Plant Engineering Linemen are responsible for shut off and LOTO of 4160V mcc compressor breaker.

2.4 Plant Engineering Riggers are responsible for moving compressor from storage to bldg 1005H.

3. Prerequisites

3.1 Training required: LOTO, Overhead Crane, Waste Generator, Basic Electrical Safety, Noise & hearing.

4. Precautions

4.1 Hearing protection required when any other compressors are running in bldg 1005H. (4 hour limit per day)

5. Procedure

5.1 Schedule rigging and linemen.

5.2 Have linemen LOTO 4160V MCC for compressor.

5.3 Have Cryo Electrical Techs shut off 480V oil pump breaker, and local 110V breaker.

5.4 Verify power is of by attempting to start motor in local.

5.5 Apply group LOTO to breakers: include adding a lock to linemen's MCC LOTO.

5.6 Have riggers bring new or rebuilt compressor to bldg 1005H east end on floor or table.

5.7 Vent compressor skid down via vacuum header (V2189M). First verify vacuum pumps are isolated.

5.8 When pressure gauges at the skid are at 1 atm, close V2189M and vent to atmosphere via H2174M and H2197M.

5.9 Complete the group LOTO for the compressor: close and lock N2100M, H2183M, V2189M, H2190M, E2195M, E2201M, H2175M.

5.10 Using overhead crane, remove suction check valve, suction line, suction screen filter.

5.11 Unbolt compressor shroud and coupling.

5.12 Remove compressor loader piping and unbolt discharge pipe.

5.13 Unbolt compressor.

5.14 Remove compressor pins on old style compressors.

5.15 Using 10 ton overhead crane and 7000lb capacity lifting fixture (dwg. 12155164), lift compressor and bring to east end 1005H compressor table. Cover openings.

> **Note:**
> If the new compressor is not going to be installed at this time, cover the discharge and suction lines using bag or coverplate.

5.16 Inspect and clean all o-rings and o-ring grooves (suction, discharge, check valve) prior to installation.

5.17 Using overhead crane and lifting fixture, install new/rebuilt compressor. Pin and bolt as required.

5.18 Install suction cone filter, suction line, and check valve.

5.19 Install oil load lines.

5.20 Check o-ring.

5.21 Secure discharge line and compressor hold down bolts.

5.22 Bolt up coupling and shroud. Grease coupling.

5.23 Pump and purge compressor and perform leak check. Check all connections.

5.24 Continue pump and purge for a total of 3 times.

5.25 Check alignment. If alignment is correct, remove LOTO and prepare skid for operation. Run oil pump and check oil levels.

5.26 Inform shift supervisor that skid is ready for testing.

6. Documentation

6.1 A moderate level work permit (green sheet) is required for this task.

7. References

7.1 Compressor weight: 6800 lbs

7.2 7000lb capacity lifting fixture shown on dwg 1255164.

8. Attachments

None